



Advanced Regenerative Medicine with Autologous Micrografting

FOR MUSCULOSKELETAL
HEALTH

ADVANCED REGENERATIVE MEDICINE FOR MUSCULOSKELETAL HEALTH



THE ONLY PROVEN
AUTOLOGOUS
MICROGRAFTING
PROCEDURE





Mytocel MSK with Autologous Micrografting:

The first ingraftable and biocompatible solution using the patient's own biological components that rapidly restores joint health and relieves pain.

Tissue-specific

Autologous

Minimally invasive

Mytocel MSK protocol with AMT® for Musculoskeletal Health

Easy to perform & short learning curve



4 STEPS FOR MYTOCEL MSK PROTOCOL

VIDEO PROCEDURE

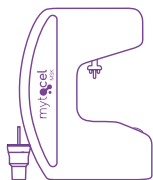
**STEP 1**
Preparation
& Anaesthesia

Sterilize and apply anesthesia on donor's area – **auricular concha**.

Create a hydrodissection with the anesthesia to separate skin from cartilage, in the anterior and posterior area of the auricular concha.

**STEP 2**
Extraction

Extract **3 cartilage samples** with a dermatological punch of 2.5 mm.

**STEP 3**
Disaggregation
& Collection

Place the cartilage samples in the **Rigeneracons® RS**, add 4 cc of saline solution and proceed to disaggregate for 6 minutes in the N4SA 2.0*.

**STEP 4**
Infiltration

Collect the **AMT® Solution** obtained and proceed with infiltration into the target joint.

*Rigeneracons® RS: disposable medical device distributed by Regenera Activa Worldwide.

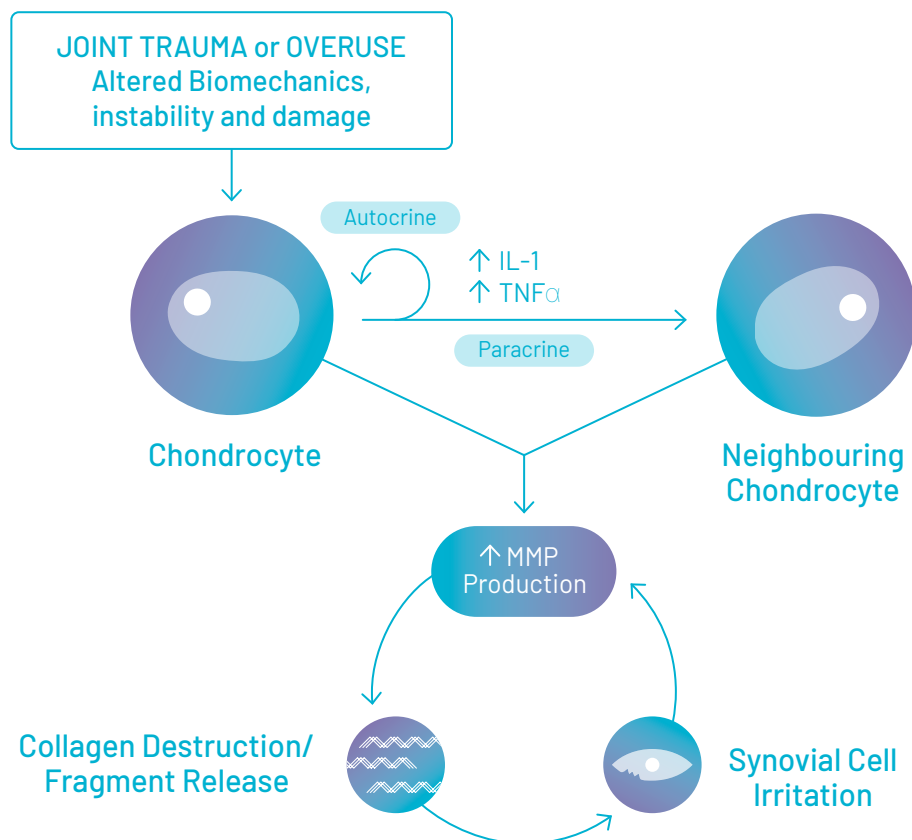
*N4SA 2.0: motor operated device for providing the electromechanical impulse and rotation.

Mytocel MSK protocol with AMT® for Musculoskeletal Health

Effective Pain Management and Stiffness Relief

Pathogenesis ¹

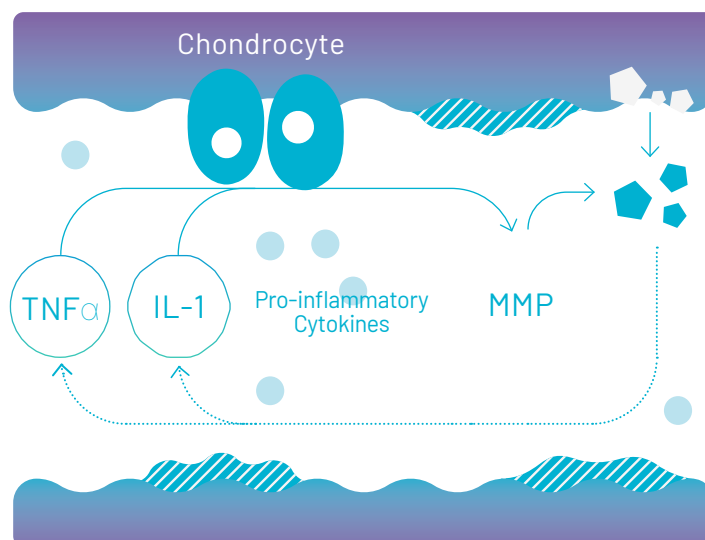
The production of pro-inflammatory cytokines like **interleukin-1 (IL-1)** and **tumor necrosis factor (TNF α)** stimulate the production of **matrix metalloproteinases (MMPs)**, protease enzymes that degrade cartilage extracellular matrix forming components. This results into inflammation, pain, and cartilage degeneration.



1. Burrage PS, Mix KS, Brinckerhoff CE. Matrix metalloproteinases: role in arthritis. Front Biosci. 2006; 11:529-543. Published 2006 Jan 1.

AMT[®] Solution

Rich in chondroprogenitor cells with mesenchymal origin (CD44, CD90, CD117) and high healing potential. These cells can enhance healing through production of soluble factors like **IL-1RA, fibulin, Acrp-30, and endostatin**. Therefore, there is pain relieve and improving the stiffness within the joint.



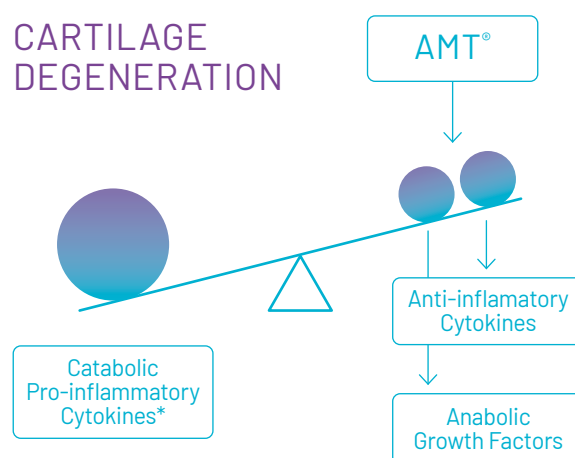
Effect

There is an acceleration of the **endogenous healing process and stabilization of the cartilage degeneration**.

The AMT[®] protocol aim is to recover the immune homeostasis within the affected joint.

The progenitor cells, from the AMT[®] suspension and the endogenous residing within the cartilage are able to receive specific inputs from the damaged microenvironment and release anabolic cytokines and growth factors.

CARTILAGE DEGENERATION



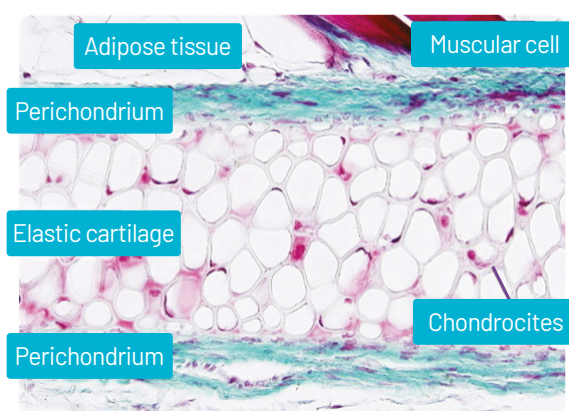
*Including IL-1, IL-6, IL-8 and TNFα

Mytoce^l MSK protocol with AMT[®] for Musculoskeletal Health

The Autologous Micrograft Solution

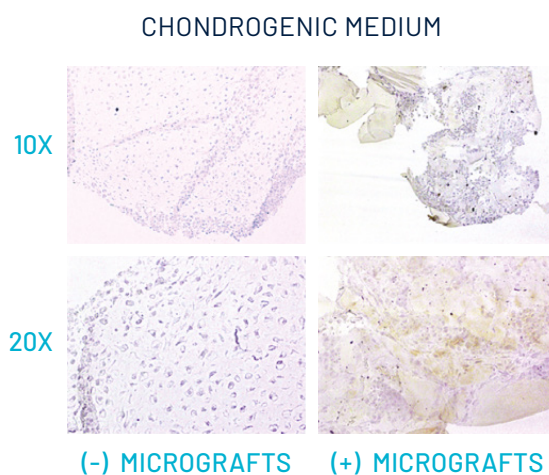
Auricular Cartilage ²

- Contains **perichondrium**, with chondrogenic layer formed by extracellular matrix rich in **chondroprogenitor cells**.
- Chondrocytes from the elastic cartilage have higher replication capacity than other cartilage types.



AMT[®] solution immunohistochemical and mRNA analysis ³

- Immunohistochemistry staining was used to evaluate **type II collagen** expression. Cells cultured in AMT[®] solution show high expression of type II collagen levels.
- mRNA gene expression analysis has shown expression of **ACAN**, **COL2**, **Sox9**, and **trophic factors** (TGF β , IGF-1).

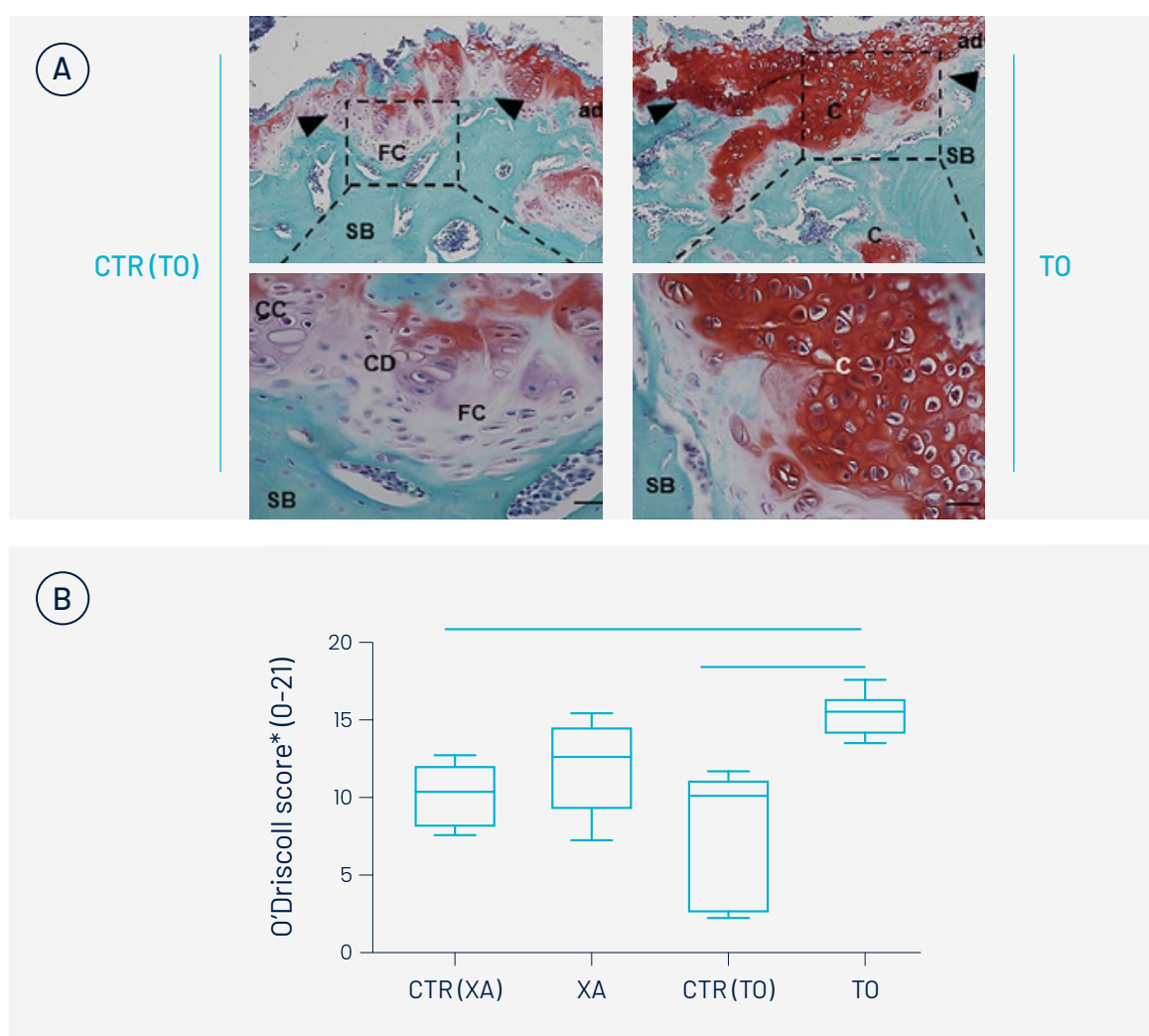


2. AL Mescher: Junqueira's Basic Histology, Text&Atlas, 13th Ed, (2013), 130-137

3. Viganò M, Tessaro I, Trovato L, et al. Rationale and pre-clinical evidence for the use of autologous cartilage micrografts in cartilage repair. J Orthop Surg Res. 2018;13(1):279. Published 2018 Nov 6.

Pre-clinical assessment of AMT[®] solution obtained by Rigeneracons[®] RS⁴

- Proved healing potential in osteochondral defects (OCD) in rats. Micrografts obtained from articulation (TO group) and xiphoid appendix (XA).
- **Histological evaluation:** repaired tissue with histological hyaline-like features. Good structural integrity derived from proteoglycans aggregation.



4. Desando G, Grigolo B, Deangelles Pereira Florentino Á, et al. Preclinical Evidence of Intra-Articular Autologous Cartilage Micrograft for Osteochondral Repair: Evaluation in a Rat Model. *Cartilage*. 2021; 13:1770S-1779S.

*O'Driscoll score is a histological parameter to semiquantify of histological features. The score considers 8 parameters: nature of the repair tissue, matrix staining, structural integrity, surface regularity, filling of the defect, bonding to host tissue, degenerative changes of the repair tissue, degenerative changes of the adjacent cartilage. It has a range from 0 (no repair) up to 21 (osteochondral repair).

AMT[®] as a non-invasive and
non-arthroscopic autograft procedure

3 years follow-up study in patients with OA grade I-III⁵

- **Main results in pain management and stiffness:** All patients report a pain reduction after 3 years of follow-up and they recovered their daily activities.
- All patients recovered their daily activities without the need for analgesic therapy as indicated by OKS* and VAS**. The mean preoperative and postoperative OKS was 28.4 ± 6 (range, 19–36) and 40.8 ± 6.2 (range, 30–47), respectively; and VAS was 5.5 ± 1.6 and 1.8 ± 0.7 before and after 6 months.

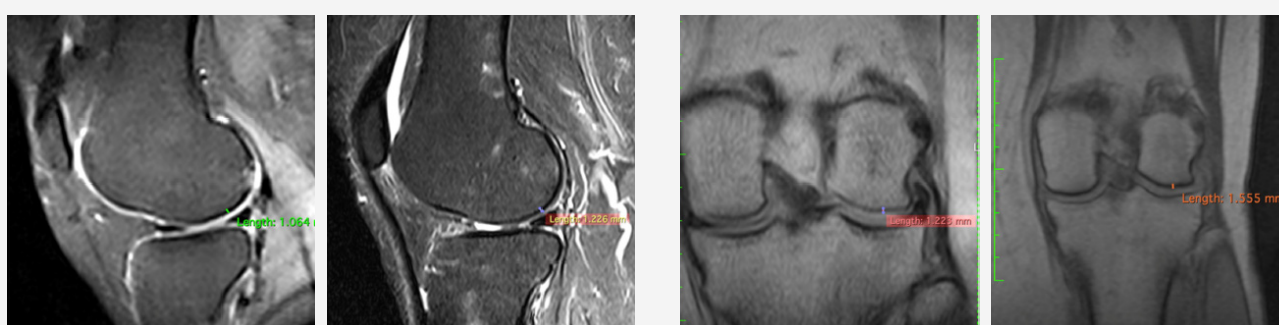
	0 months	6 months
OKS	28.4 ± 6	40.8 ± 6.2
VAS	5.5 ± 1.6	1.8 ± 0.7

5. Marcarelli M, Zappia M, Rissolio L, et al. Cartilage Micrografts as a Novel Non-Invasive and Non-Arthroscopic Autograft Procedure for Knee Chondropathy: Three-Year Follow-Up Study. *J Clin Med*. 2021;10(2):322.

*OKS: Oxford Knee Scale

**VAS: Visual Analogue Scale

- An additional structural evaluation of the cartilage: a significant improvement of **the cartilage thickness** was observed using MRI after 3 years.



Representative image MRI from one of the patients at 3 years follow-up.

Table 4. MRI results of cartilaginous thickness of femoral lateral condyles on the sagittal plane.

PATIENTS	PRE/FEMORAL LATERAL CONDYLES	3 YEARS / FEMORAL LATERAL CONDYLES	DIFFERENCE
1	1.064 mm	1.226 mm	+ 15.22 %
2	1.339 mm	1.472 mm	+ 9.32 %
3	1.068 mm	1.263 mm	-14.20 %

Table 5. MRI results of cartilaginous thickness of femoral lateral condyles on the corporal palne

PATIENTS	PRE/FEMORAL LATERAL CONDYLES	3 YEARS / FEMORAL LATERAL CONDYLES	DIFFERENCE
1	1.223 mm	1.555 mm	+ 27.14 %
2	1.489 mm	1.882 mm	+ 26.39 %
3	0.893 mm	1.914 mm	-114.33 %

The AMT[®] protocol for Musculoskeletal System

To sum up



Recommended for

- Osteoarthritis (grade I-III)
- Cartilage injuries/damage
- Chondromalacia Patellae



Features of the protocol

- Autologous
- Tissue-specific micrograft solution
- Minimally invasive
- Easy to perform
- Based on biological mechanism of action



Benefits for the patient

- Pain management effects after 2 weeks
- Stiffness improvement leading to higher quality of life
- Slowing down the progression of the problem
- May postpone and/or avoid surgery
- 3 years lasting results



The only orthobiological procedure on the market that combines different tissue-specific biological components with a unique non-invasive technique based on the healing power of regenerative science.

©Copyright 2023 by Regenera Activa Worldwide, S. L. Regenera Activa or its representatives hold no responsibility for treatment outcomes. This treatment program is not designed to cure disease. Individual results may vary. If its do not agree to these terms and conditions, do not purchase this product. Your purchasing of this product is your acceptance of these terms and conditions. You acknowledge that Regenera Activa, at its absolute discretion, may at any time remove, alter or otherwise change these terms and conditions. You are bound by the new terms and conditions. To the extent permissible under applicable laws, no acceptance is assumed for any injury and/or damage to persons, animals, or Regenera Activa as a matter of products fixability, negligence or otherwise, or from any use or operation of any ideas, instructions, methods, products or procedures. If this product or its intended service contains or infers medical or health sciences information, know that it is designed for professional use within the medical field. No suggested test or procedure should be carried out unless its risk is justified in the reader's judgment. Due to the rapid advances in sciences, we recommend that the independent verification of diagnoses and treatment regimes be made by purchasing our products. You agree to use them for their intended use only. If you use the product or any associated service for another purpose, you assume full responsibility for any loss or damage arising and void any warranty. Diagrams in this publication are for educational purposes only; diagrammatic representations of needle depth or cosmetic absorption, skin histology, and skin diagrams are not to scale. EC REP: Manufactured exclusively for Regenera Activa Worldwide, S.L., Barcelona, Spain.

REMEDI



**Worldwide Distributor of
Regenera® technology**

LEGAL HEADQUARTERS & OFFICE

C/ Sant Ferran 10-12, local
08031 Barcelona, Spain

CONTACT INFORMATION

+34 93 514 57 56
info@regeneraactiva.com
www.regeneraactiva.com
@regeneraactiva_amt



Worldwide Manufacturer

C.so Galileo Ferraris 63,
10128 Torino, Italy
Via Sestriere 17, 10060
Candiolo (TO), Italy



US FDA Establishment
Registration Number:
3010882686



FMA
Fabricators and
Manufacturers
Association

